

**Dr. Duke's Phytochemical and Ethnobotanical Database**

**Chemicals Found in *Cichorium intybus***

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	11(S),13-DIHYDRO-8-DEOXYLACTUCIN	Root	--	--		
1	11(S),13-DIHYDROLACTUCIN	Root	--	--		
1	11(S),13-DIHYDROLACTUCOPICRIN	Root	--	--		
5	8-DEOXYLACTUCIN	Plant	--	--		
5	8-DEOXYLACTUCIN	Root	--	17		
6	ACETOPHENONE	Root	--	--		Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
32	AESCULETIN	Leaf	--	--		
32	AESCULETIN	Plant	--	--		
33	AESCULIN	Plant	--	--		
33	AESCULIN	Leaf	--	--		
10	ALPHA-AMYRIN	Seed	--	--		
15	ALPHA-LINOLENIC-ACID	Root	130	650	-0.32107850770475904	USDA's Ag Handbook 8 and sequelae)
15	ALPHA-LINOLENIC-ACID	Leaf	60	1224	-1.0636070799711819	USDA's Ag Handbook 8 and sequelae)
5	ALUMINUM	Root	--	--		
101	APIGENIN	Shoot	--	--		
14	ARGININE	Leaf	660	14892	-0.29705091845608234	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
112	ASCORBIC-ACID	Root	50	250	-0.5030624603012167	
112	ASCORBIC-ACID	Leaf	100	2040	-0.254634091901897	
7	ASTRAGALIN	Leaf	--	--		
7	ASTRAGALIN	Plant	--	--		
9	BETA-AMYRIN	Seed	--	--		
53	BETA-CAROTENE	Leaf	--	228	-0.14501134388228565	USDA's Ag Handbook 8 and sequelae)
14	BETAINE	Root	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	BORON	Root	20	20	-0.14974023395860875	Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron).
102	CAFFEIC-ACID	Leaf	767	767	-0.6095210261436637	
102	CAFFEIC-ACID	Shoot	--	--		
28	CALCIUM	Root	410	2050	-0.5862286623630208	
28	CALCIUM	Leaf	790	18900	0.09995100214309341	
22	CATECHOL	Root	--	--		
1	CELLULOSE	Root	--	50000	-1	
10	CHICORIC-ACID	Leaf	--	1100		
10	CHICORIC-ACID	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
77	CHLOROGENIC-ACID	Plant	--	--		
77	CHLOROGENIC-ACID	Root	--	--		
77	CHLOROGENIC-ACID	Shoot	--	--		
77	CHLOROGENIC-ACID	Leaf	--	--		
20	CHOLINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	CICHORIC-ACID	Leaf	--	--		
3	CICHLORIIN	Plant	--	--		
3	CICHLORIIN	Flower	1000	2000		
3	CICHLORIIN	Root	--	--		
3	CICHLORIIN	Leaf	--	--		
23	CITRIC-ACID	Plant	--	--		
12	COPPER	Root	--	--		
57	COUMARIN	Plant	--	--		
30	ESCULETIN	Flower	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
29	ESCULIN	Flower	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
61	FERULIC-ACID	Leaf	--	0.5	-1.0842680798316504	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
61	FERULIC-ACID	Plant	--	--		
15	FIBER	Plant	9000	153000	-0.5161042249299459	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Root	19500	97500	0.20849392887813434	
8	FRUCTOSE	Root	45000	220000	1.999334825861607	
7	GLUCOSE	Root	11000	11000	-0.4327088902399002	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
7	HARMAN	Root	--	--		
7	HISTIDINE	Leaf	150	3468	-0.9576955368033032	USDA's Ag Handbook 8 and sequelae)
30	HYPEROside	Shoot	--	--		
30	HYPEROside	Leaf	--	--		
30	HYPEROside	Plant	--	--		
8	INOSITOL	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
19	INULIN	Leaf	--	--		
19	INULIN	Root	80000	580000	2.568442619517879	
6	IRON	Leaf	5	246	-0.29703270980762686	USDA's Ag Handbook 8 and sequelae)
6	IRON	Root	8	40	-0.38354158556693424	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	ISOCHLOROGENIC-ACID	Plant	--	--		Gruenwald, J. et al. 1998. PDR for Herbal Medicine. 1st ed. Medical Economics Co., Montvale, NJ. 1244 pp. (abbreviated as PHR or Physicians Herbal Reference in my mind)
4	ISOCHLOROGENIC-ACID	Root	--	--		
3	ISOLEUCINE	Leaf	540	12240	0.045339706929741146	USDA's Ag Handbook 8 and sequelae)
75	KAEMPFEROL	Plant	--	--		
75	KAEMPFEROL	Seed	--	20		
6	LACTUCIN	Fruit Juice	--	--		
6	LACTUCIN	Plant	--	--		
6	LACTUCIN	Latex Exudate	--	--		
6	LACTUCIN	Root	--	--		
4	LACTUCOPICRIN	Root	--	--		
4	LACTUCOPICRIN	Fruit Juice	--	--		
4	LACTUCOPICRIN	Latex Exudate	--	--		
2	LACTUPICRIN	Plant	--	--		
2	LEUCINE	Leaf	390	8976	-1.160783880324028	USDA's Ag Handbook 8 and sequelae)
1	LEVULOSE	Fruit Juice	--	--		
27	LINOLEIC-ACID	Root	750	3750	0.23419013142339878	
27	LINOLEIC-ACID	Seed	--	--		
27	LINOLEIC-ACID	Leaf	370	7548	-0.10687088053184475	USDA's Ag Handbook 8 and sequelae)

<b>Activity Count</b>	<b>Chemical</b>	<b>Plant Part</b>	<b>Low PPM</b>	<b>High PPM</b>	<b>StdDev</b>	<b>Reference Citation</b>
4	LYSINE	Leaf	350	7956	-1.1182801972380008	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Leaf	130	2652	-0.5690626388509602	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Root	220	1100	-0.7776954016677178	
15	MALIC-ACID	Plant	--	--		
18	MANNITOL	Plant	--	--		
3	MANNOSE	Root	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
15	METHIONINE	Leaf	50	1224	-1.5483275310004487	USDA's Ag Handbook 8 and sequelae)
13	MUFA	Leaf	20	365	-0.692331152044028	USDA's Ag Handbook 8 and sequelae)
13	MUFA	Root	40	200	-0.8770490931439714	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Leaf	10	204	-0.6023075913949533	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Root	30	150	-0.5390201665235613	USDA's Ag Handbook 8 and sequelae)
2	NEO-CHLOROGENIC-ACID	Root	--	--		
2	NEO-CHLOROGENIC-ACID	Shoot	--	--		
39	NIACIN	Root	4	20	-0.8763923978074498	USDA's Ag Handbook 8 and sequelae)
39	NIACIN	Leaf	5	102	0.05472679513303063	USDA's Ag Handbook 8 and sequelae)
2	NORHARMAN	Root	--	--		
18	OLEIC-ACID	Seed	--	--		
18	OLEIC-ACID	Leaf	20	408	-0.6177088987554278	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
18	OLEIC-ACID	Root	40	200	-0.6297846550737646	USDA's Ag Handbook 8 and sequelae)
13	P-HYDROXY-BENZOIC-ACID	Leaf	11	11	-0.7729405090241419	
13	PALMITIC-ACID	Seed	--	--		
13	PALMITIC-ACID	Leaf	210	4284	-0.3076698789052898	USDA's Ag Handbook 8 and sequelae)
13	PALMITIC-ACID	Root	410	2050	-0.30431334760427364	USDA's Ag Handbook 8 and sequelae)
2	PALMITOLEIC-ACID	Root	750	3750	1.9212861697652845	USDA's Ag Handbook 8 and sequelae)
24	PECTIN	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	PHENYLALANINE	Leaf	220	4896	-1.3885269608474589	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Leaf	210	4284	-0.12648268363942136	
4	PHOSPHORUS	Root	610	3050	-0.0821867763972658	
3	PONTICAEPoxide	Root	--	--		
14	POTASSIUM	Leaf	1820	37128	0.2995628765550062	USDA's Ag Handbook 8 and sequelae)
14	POTASSIUM	Root	2900	14500	-0.09363688811813217	
2	PROTOCATECHUIC-ALDEHYDE	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	PUFA	Leaf	440	8030	-1.576432461803007	USDA's Ag Handbook 8 and sequelae)
4	PUFA	Root	870	4350	-0.318698697794576	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Seed	--	1		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
176	QUERCETIN	Plant	--	--		
2	QUERCETIN-3-O-BETA-D-GLUCURONIDE	Leaf	--	--		
2	QUERCETIN-3-O-BETA-D-GLUCURONIDE	Plant	--	--		
44	QUERCITRIN	Shoot	--	--		
15	RIBOFLAVIN	Root	--	2	-0.45399811156287	USDA's Ag Handbook 8 and sequelae)
15	RIBOFLAVIN	Leaf	1	29	-0.04192444032714655	USDA's Ag Handbook 8 and sequelae)
87	RUTIN	Seed	--	6400	0.07536225897017279	
87	RUTIN	Leaf	--	14000	-0.1353936273578098	
7	SALICYLATES	Leaf	10	100	-0.3593779047496331	
44	SCOPOLETIN	Flower	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
44	SCOPOLETIN	Plant	--	--		
4	SILICON	Root	--	--		
3	SILVER	Root	--	--		
9	SINAPIC-ACID	Plant	--	0.5	-1	
1	SODIUM	Leaf	70	1428	-0.3936622771435691	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Root	500	2500	0.6512650124326103	
8	STEARIC-ACID	Leaf	10	204	-0.48893321127321177	USDA's Ag Handbook 8 and sequelae)
8	STEARIC-ACID	Root	20	100	-0.6446087280612671	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	STEARIC-ACID	Plant	--	--		
8	STEARIC-ACID	Seed	--	--		
14	SUCROSE	Root	--	140000	0.1611945921135931	
35	TANNIN	Plant	--	--		
2	TARAXASTEROL	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	TARTARIC-ACID	Plant	--	--		
6	TARTARIC-ACID	Shoot	--	--		
31	THIAMIN	Leaf	1	14	1.1869303740705777	USDA's Ag Handbook 8 and sequelae)
31	THIAMIN	Root	--	2	-0.41582954985618054	USDA's Ag Handbook 8 and sequelae)
4	THREONINE	Leaf	250	5712	-1.367011082098785	USDA's Ag Handbook 8 and sequelae)
29	TRYPTOPHAN	Leaf	160	3672	0.6804048665688907	USDA's Ag Handbook 8 and sequelae)
22	UMBELLIFERONE	Plant	--	--		
22	UMBELLIFERONE	Flower	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
3	VALINE	Leaf	410	9180	-0.9848461873827702	USDA's Ag Handbook 8 and sequelae)
24	VANILLIC-ACID	Leaf	0.5	0.5	-1.181981260366695	
24	VITAMIN-B-1	Root	--	0.05		
77	ZINC	Root	--	--		